

Remarks/Arguments:

Applicants gratefully acknowledge the telephone interview with the Examiner and Examiner Donovan on July 25, 2006. During the interview it was agreed that the there the combination of references proposed by the Examiner did not appear to be proper.

Claims 1-10 are pending.

Claim 7 is allowed

Claims 1-6 and 8-9 stand rejected, while claim 10 is indicated to be allowable if properly rewritten in independent form.

By this Amendment, claims 1 and 7 are amended only to correct typographical errors, claim 10 is amended into proper independent form (including the subject matter of claims 1 and 10) and new claim 11 is added to incorporate the subject matter of claims 1, 2 and 10. It is submitted that no new matter is presented by the claim amendments and new claims.

Allowable Subject Matter

In the Office Action, on page 5, claim 10 is indicated to be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 10 prior to this amendment was a multiple dependent claim dependent from claim 1 or claim 2. Accordingly, Applicants have rewritten claim 10 in independent form based on the subject matter of claims 1 and 10 and have added new independent claim 11 based on the subject matter of claims 1, 2 and 10. It is submitted that claims 10 and 11 are now allowable.

Reconsideration is respectfully requested.

Rejection of Claims 1-3, 5-6 and 8-9 Under 35 U.S.C. §103(a)

In the Office Action, on page 2, claims 1-3, 5-6 and 8-9 were rejected as being obvious over Gibson (U.S. Patent No. 4,463,294) in view of Armstrong (U.S. Patent No. 4,554,493).

This ground for rejection is respectfully traversed. Applicants assert that a *prima facie* case of obviousness has not been made. In particular, Applicants disagree with the motivation to combine Gibson and Armstrong.

Claim 1 is directed to a method for controlling an operation of a wiper, and recites:

- (a) collecting water by a wiping operation;

(b) detecting an amount of the collected water passing through the detection area;

(c) detecting an impact of a raindrop on the detection area ...

That is, an amount of the water that is collected by the wiper operation and that passes through the detection area is detected, and, furthermore, an impact of a raindrop on the detection area is detected.

Gibson Reference

In the Office Action at page 2, last paragraph, the Examiner concedes that "Gibson does not teach detecting an amount of the collected water passing through the detection area."

In the Office Action at page 2, last paragraph to page 3, first paragraph, the Examiner contends that:

Gibson does state the sensor could be mounted anywhere it faces oncoming rain, which could include the windshield under the wiper coverage area.

Armstrong teaches collecting water by a wiper operation (abstract), detecting ... an amount of the collected water passing through the detection area ... It would have been obvious to put the sensing area subject to the action of the windshield wipers into the device of Gibson, to provide the advantage of being cleaned of water ... so the sensor could update the system in response to water present."

The statement by the Examiner is ambiguous, but is interpreted to mean that it would be obvious to position the sensor disclosed by Gibson on the glass in the area being wiped.

Applicants respectfully disagree with the Examiner and assert that a *prima facie* case of obviousness has not been made. In particular, Applicants disagree with the motivation to combine Gibson and Armstrong. The Gibson sensor used to control the windshield wipers 12 is carried in a housing 14 with a square opening 16 such that on interior wall 18, a plurality of infrared emitters 26 are positioned. Infrared signals are transmitted across the opening 16 to a plurality of infrared sensors 28. (See Gibson at column 2, lines 42-59.) Due to this required structure, the Gibson sensor would not be operable if it were covered by the windshield, because raindrops could not reach the opening 16 and therefore, the Gibson sensor positioned under the glass would not sense raindrops or anything else. Moreover, if the Gibson sensor were mounted on the windshield in an area subject to the action of the windshield wipers 12

with the opening 16 capable of receiving raindrops, it still would not be operable because the windshield wipers 12 would cause collection of water in the Gibson sensor opening 16. This would not allow the Gibson sensor to properly sense the impact of raindrops. Also, the windshield wipers 12 themselves would interfere with the infrared beams so, once the wipers turned on, the windshield wipers interfering with the infrared beams, would be sensed as raindrops and the windshield wipers would, thus, never turn off.

Lack of Motivation to Combine the Teachings of Gibson and Armstrong

The Examiner contends that the motivation for combining Gibson and Armstrong is "... to put the sensing area subject to the action of the windshield wipers into the device of Gibson, to provide the advantage of being cleaned of water ... so the sensor could update the system in response to water present."

Applicants respectfully disagree with the Examiner and submit that no motivation exist for one skilled in the art to combine the teachings of Armstrong with Gibson. It appears that the Examiner contends that the combination of Gibson and Armstrong has the advantage that the Gibson sensor can be periodically cleaned due to the wiping action of the windshield wipers 12. Since the structure of Gibson sensor requires the opening 16 to operate, the result of the wiping action would be to collect dirt in the opening 16, contrary to the contention of the Examiner. That is, by adding the Gibson sensor to the windshield, the sensor either would not be cleaned or would sense the windshield wipers passing through the sensing area as water and, once the wiping operation started, it would not stop. Thus, one of skill in the art would have no motivation to combine such teachings because the result would be disadvantageous and inoperable.

Applicants note that embodiments of the present invention use optical sensing based on refraction and total internal reflection to determine water on the external surface of the windshield. Modifying the Gibson sensor to such a structure, however, is well beyond one of ordinary skill in the art.

The cited art of Gibson and Armstrong, taken singularly or in any proper combination, does not disclose or suggest the features in claim 1 of: "detecting an amount of the collected water passing through the detection area."

Accordingly, claim 1 is not subject to rejection under 35 U.S.C. § 103(a) in view of Gibson and Armstrong.

Claims 2, 3, 5 and 6, which depend from claim 1, are not subject to rejection under 35 U.S.C. § 103(a) in view of Gibson and Armstrong for at least the same reasons as claim 1.

Claims 8 and 9

Claim 8, which is not identical to claim 1, includes a similar patentable feature to that of claim 1; namely: "means for receiving as inputs a detection result of the amount of water passing through the detection area, with the water being carried to the detection area by wiping operation of the wiper, and a detection result of an impact of a raindrop on the detection area," and is not subject to rejection under 35 U.S.C. § 103(a) in view of Gibson and Armstrong for at least the same reasons as claim 1.

Claim 9, which depend from claim 8, is not subject to rejection under 35 U.S.C. § 103(a) in view of Gibson and Armstrong for at least the same reasons as claim 8.

Rejection of Claim 4 Under 35 U.S.C. §103(a)

In the Office Action, on page 5, claim 4 is rejected as being obvious over Gibson (in view of Armstrong and further in view of Ausiello (U.S. Patent No. 6,184,642).

This ground for rejection is respectfully traversed.

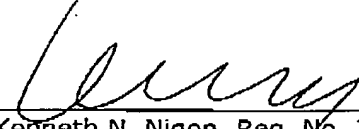
Gibson is described above. Ausiello concerns a vehicle wiper control device in which rain is sensed responsive to the instantaneous friction between the wiper blade and the vehicle window and the aerodynamic load acting on the wiper blade. (See column 2, lines 25-38). Ausiello does not disclose or suggest "detecting an amount of the collected water [i.e., collected by a wiping operation] passing through the detection area" (brackets added, as required by claim 1.) Accordingly, Ausiello does not provide the material that is missing from Gibson and Armstrong.

Thus, claim 1, and claim 4 which depends from it, are not subject to rejection under 35 U.S.C. § 103(a) in view of Gibson, Armstrong and Ausiello.

Conclusion

In view of the foregoing amendments and remarks, Applicants request that the Examiner reconsider and withdraw the rejection of claims 1-6, 8 and 9 and the objection to claim 10. Applicants also request the Examiner to allow newly-added claim 11 which incorporates the subject matter of claims 1, 2 and 10.

Respectfully submitted,


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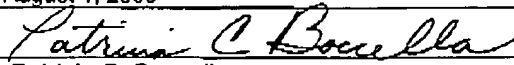
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August 1, 2006


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